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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,275	07/05/2006	Nancy F. Dean	379958	2425

92724 7590 10/21/2010

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EXAMINER

CHERVINSKY, BORIS LEO

ART UNIT

PAPER NUMBER

2835

NOTIFICATION DATE

DELIVERY MODE

10/21/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/585,275	Applicant(s) DEAN ET AL.	
	Examiner Boris L. Chervinsky	Art Unit 2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/28/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCormick et al. in view of Edwards et al.

McCormick discloses a heat spreader comprising a base portion 112 having a heat spreading surface comprised of a heat receiving region made of nickel plated copper (metallic coating of claim 3) or copper alloy (col. 2, lines 65-67); a frame portion 110 made of copper or copper alloy (col. 2, lines 39-40) interfacing perimeter portion of the heat spreader and having opening traversing the thickness of the frame portion; the frame portion is in direct contact with the base portion (claim 10); the thermal conductivity greater than 300 W/mk or 400 W/mk is also disclosed (col. 2, lines 59-61); the circuit board 106, the flip chip 100 are also shown. McCormick discloses the claimed invention except different materials for the base portion and the frame portion. Edwards discloses different materials for the base portion 20 and the frame portion 23 (col. 5, lines 28-34, col. 6, lines 22-25), therefore it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use different materials

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for the heat spreader and the frame as disclosed by Edwards et al. in the device disclosed by McCormick.

With respect to claims 8 and 9, McCormick discloses the claimed invention but does not specifically indicate that thermal expansion is less than 6 ppm/k but it would be obvious to one having ordinary skill in the art at the time the invention was made to have the thermal expansion limited to claimed number to avoid stress in joined materials.

With respect to claim 11, McCormick discloses the claimed invention except diffusion bonding. The diffusion bonding is known method of joining of two different parts and as method step in the article claim does not render novelty as soon as the structure is disclosed. The method steps of claims 15-19 and 25, 27 are necessitated by the device structure as disclosed by McCormick et al. in view of Edwards et al.

With respect to claims 4, 5, 23, 26 and 28 McCormick discloses the claimed invention except interface materials such as solder or adhesive disposed between the frame and the base portion and between the base portion and the heat generating device and method of making using these materials. Edwards discloses such materials 41, 45, 28 connecting the frame and the base portion and the base portion and the heat-generating device, therefore it would be obvious to one having ordinary skill in the art at the time the invention was made to use materials and method as disclosed by Edwards et al. in the device disclosed by McCormick et al.

Double Patenting

3. Claims 1,3-28 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 23, 24 of copending Application No. 11/755,610. Although the conflicting claims are not identical, they are not patentably distinct from each other because they claim substantially same structure.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

4. Applicant's arguments filed 9/13/2010 have been fully considered but they are not persuasive. The applicant's argument that McCormick discloses the single piece is not factually correct since Figures 1D through 1F show the heat spreader constructed with the base 112 and the stiffener 110 which could be made of similar materials as well as it could be the case with claimed structure in the instant application since the same materials such as copper or copper alloy are listed for the base and for the frame in all independent claims. The single piece, as suggested by applicant, would be a structure that is made of one single piece of material and not being made from several pieces and later joined together. The devices disclosed by McCormick and by Edwards show the heat spreaders constructed of two different elements: the base and the stiffener with wide choice of high thermally conductive materials combined since it has been held to be within the general skill of a worker in the art to select a known material on the basis

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of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

In response to applicant's argument that there is no teaching, suggestion, or motivation to combine the references, the examiner recognizes that obviousness may be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992), and *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007). In this case, the claimed materials are commonly used as thermally conductive and/or dissipative devices therefore the combining McCormick and Edwards is proper.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Boris L. Chervinsky whose telephone number is 571-272-2039. The examiner can normally be reached on 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayprakash N. Gandhi can be reached on 571-272-3740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Boris L. Chervinsky/
Primary Examiner, Art Unit 2835

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